2011 Military Health System Conference

Healthcare Quality and Patient Safety Innovations: Lessons from the Field

Improving the High-Level Disinfection Process of Vaginal Ultrasound Probes

The Quadruple Aim: Working Together, Achieving Success

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Project Background

- Proactive evaluation of high-level disinfection (HLD) process
- Vaginal ultrasound probes selected
- 5 clinical areas
- Lean Six Sigma and H-FMEA methodologies
- Multidisciplinary team
- 6 months

Key Findings

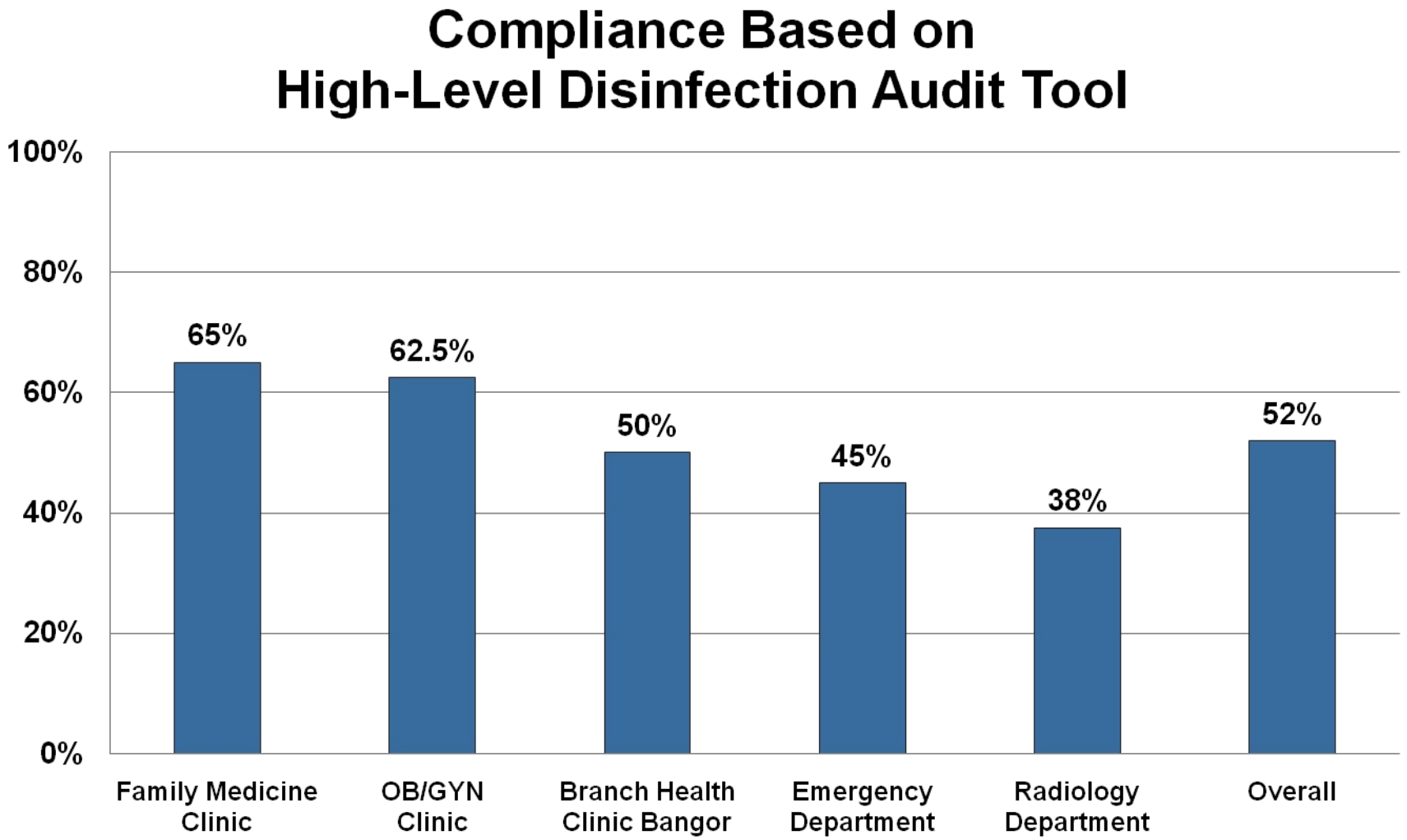
- HLD is a complicated process
- Multiple guidelines to follow
- Measurement tool needed
- Obsolete equipment in use
- Centralization of HLD not practical
- Staff apprehensive to fully immerse probes
- Practical, economical solutions identified
- Leadership support imperative

High-Level Disinfection Audit Tool

Note: Design and Process sections omitted to improve visibility

STANDARD	POINTS	YES	NO
Equipment			
5. Is a clock or timer in the room?	1		
6. Are gloves in the room?	1		
7. Are goggles or eye protection in the room?	1		
8. Are gowns in the room?	1		
9. Is the disinfectant solution container the appropriate size?	1		
10. Is there a rinse container?	1		
11. Is the rinse container the appropriate size for high volume rinse (2 gallons)?	1		
12. Are step-by-step instructions clearly posted on the wall?	1		
13. Are equipment manufacturer guidelines readily available?	1		
14. Are disinfectant solution manufacturer guidelines readily available?	1		
Overall			
25. Are the equipment manufacturer guidelines followed?	2		

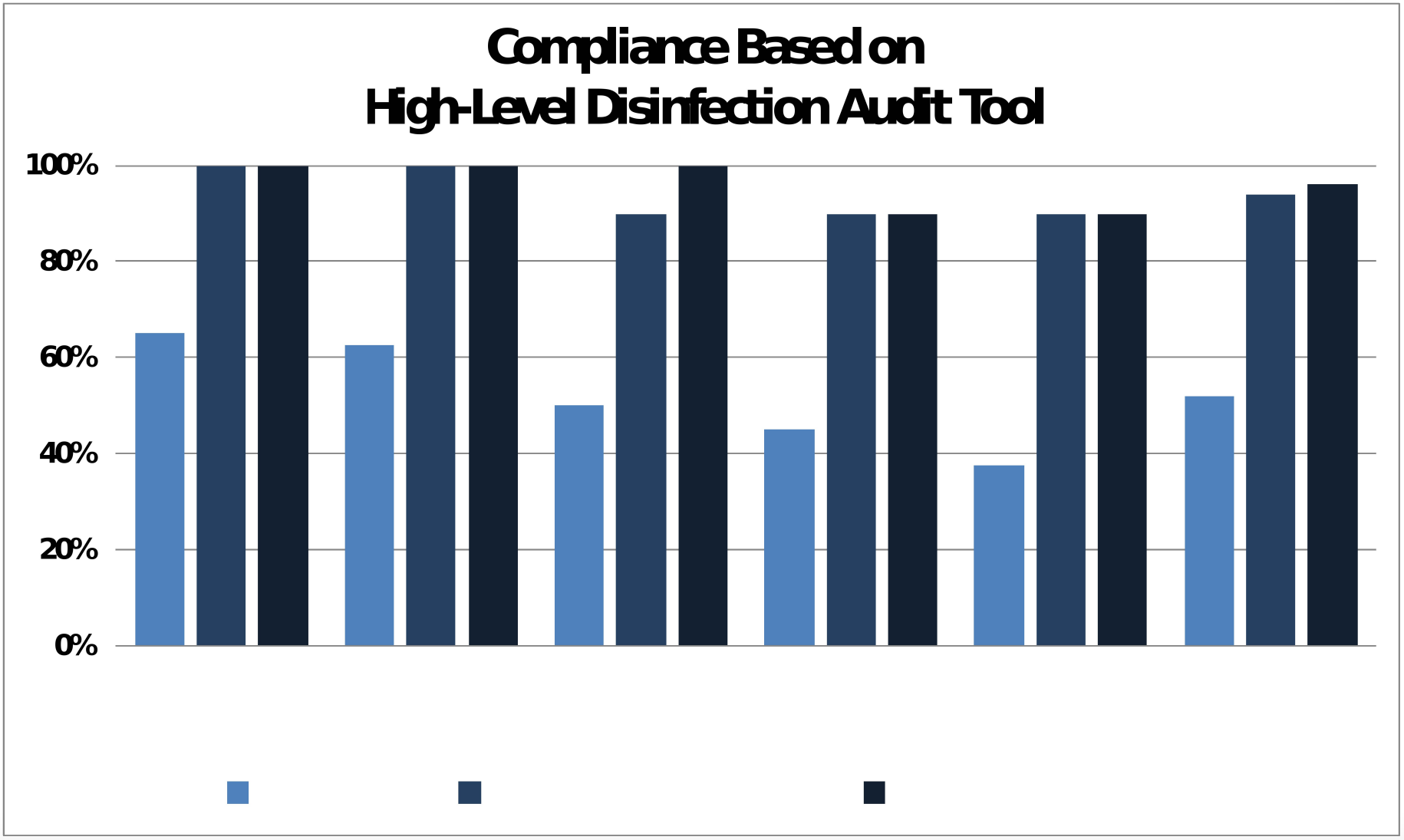
Baseline


Compliance Based on
High-Level Disinfection Audit Tool
100%
80%
60%
40%
20%
0%
65%
62.5%
50%
45%
38%
52%
Family Medicine Clinic
OB/GYN Clinic
Branch Health Clinic Bangor
Emergency Department
Radiology Department
Overall

Failure Modes and Effects Analysis

Failure Modes and Effects (Risk)		Baseline Risk				Risk Reduction	Revised Risk			
Process Step	**Failure Mode & Effect**	**Sev**	**Occ**	**Det**	**RPN**	**Recommended Actions**	**Sev**	**Occ**	**Det**	**RPN**
Disinfectant tested once daily in AM	Disinfectant not tested prior to each use, concentration ineffective	10	5	10	**500**	Test disinfectant prior to each use	10	1	10	**100**
3/4 of probe handle immersed in disinfectant	Probe partially immersed in disinfectant, contaminated area of probe not disinfected	5	10	5	**250**	Fully immerse probe handle and 12-18 inches of cord in disinfectant	5	1	5	**25**
Probe air -dried following disinfection	Bacterial growth encouraged due to delayed drying time, probe contaminated	5	5	10	**250**	Dry probe with sterile gauze following disinfection	5	1	10	**50**
Probe returned to exam room uncovered	Uncovered probe transported through clinic, probe contaminated	1	5	10	**50**	Cover probe with clean cloth for transport and storage	1	1	10	**10**
Total					**1050**					**185**

Results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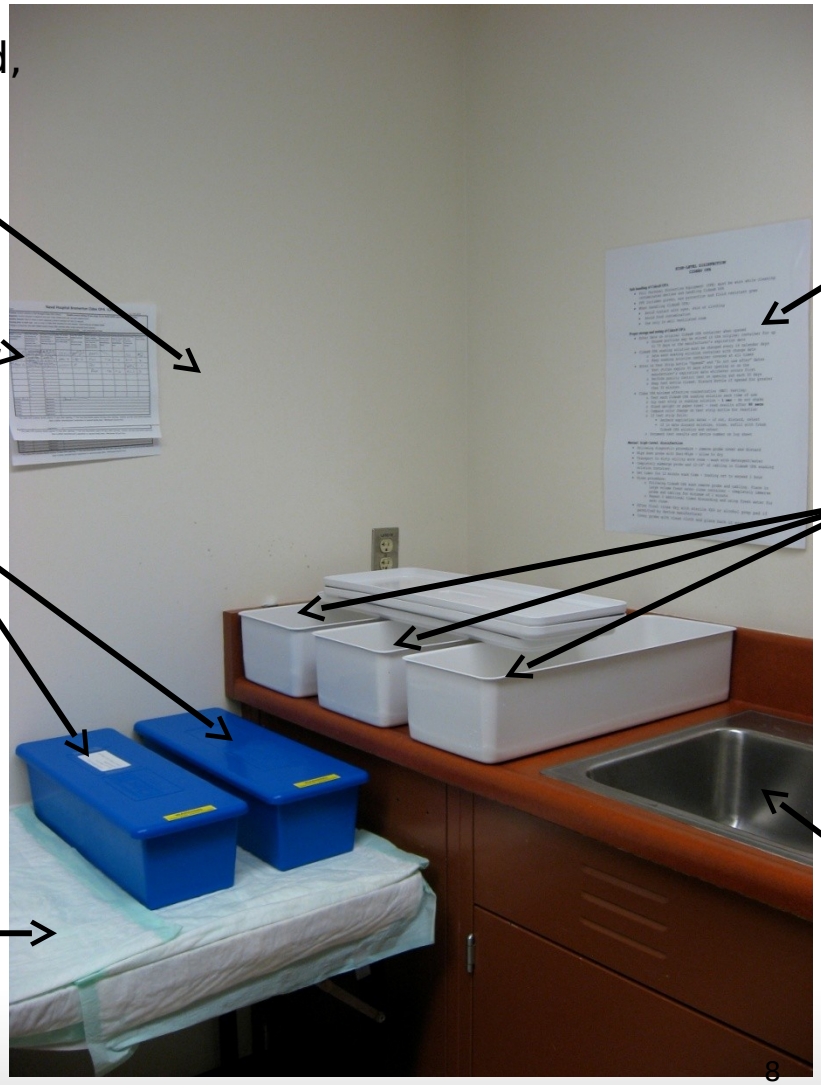
60%
40%
20%
0%

Post Improvement



Benefits

- Improved compliance
- Decreased process variation
- Safer patient care environme
- Easily replicated in other clinical areas
- Successful use of LSS to improve patient care
- Team satisfaction
- Easily sustained